Claims

1. Imbalance measuring device for rotors (1), with essentially one bearing device for static fluid bearing for a rotatable rotor (1), a device to change the rotary behaviour of the rotor (1), at least one measuring transducer (6) which captures the effects of the imbalance of the rotor (1) in a measuring process, a device to generate a reference signal, and an evaluation device for the signals which the measuring transducer supplies using the reference signal, characterized in that the bearing device has at least two open, fluid-supplied bearing shells (11, 11') to receive sections of the rotor periphery and at least one bearing plate (12, 12') which is assigned to a rotor end surface, rigidly supported and supplied with fluid, in that a device to capture the rotary behaviour of the rotor (1) is provided, and in that the device to change the rotary behaviour is decoupled from the rotor (1) during the measuring process, which takes place with rotary behaviour which is constant or preferably variable over time.

2. Imbalance measuring device according to Claim 1, characterized in that the bearing shells (11, 11') are arranged exchangeably on the bearing device, and the bearing device has a fluid supply system, which makes possible a fluid-proof joining of, in particular, bearing shells (11, 11') which are to be exchanged, and have different fluid channels (21, 21'), to the bearing device.

3. Imbalance measuring device according to one or both of the preceding claims, characterized in that the bearing plate (12, 12') is arranged exchangeably on the bearing device or a component, which cannot oscillate, of the imbalance measuring device, and the bearing device or component has a fluid supply system, which makes possible a fluid-proof joining of, in particular, bearing plates (12, 12') which are to be exchanged, and have different fluid channels, to the bearing device or component.

4. Imbalance measuring device according to one of the preceding claims, characterized in that two rigidly supported, fluid-supplied bearing plates (12, 12') which enclose the two rotor end surfaces between them are provided.

5. Imbalance measuring device according to one of the preceding claims, characterized in that the device to change the rotary behaviour is a belt drive (5), the belt of which can be put on at two essentially opposite rotor positions.

6. Imbalance measuring device according to Claim 5, characterized in that the belt drive (5) has a V-shaped area (5) with changeable included angle, within which the rotor (1) is arranged.

7. Method of measuring the imbalance of rotors (1), wherein the rotor (1) is supported in a static fluid bearing of an imbalance measuring device and a rotary movement of the rotor (1) takes place, characterized in that the rotor (1) is supported in a precise position in at least two aerostatic bearings in the radial direction and in at least one aerostatic bearing in the axial direction, and during the measuring process the rotary behaviour of the rotor (1) is not influenced and the measuring process takes place with time-variable rotary behaviour.

8. Method of measuring the imbalance of rotors (1), wherein the rotor (1) is supported in a static fluid bearing of an imbalance measuring device and a rotary movement of the rotor (1) takes place, characterized in that the rotor (1) is supported in a precise position in at least two aerostatic bearings in the radial direction and in at least one aerostatic bearing in the axial direction, and during the measuring process the rotational speed of the rotor (1) is kept constant.